REMARKS

Claims 1-12 are currently pending in the application. Claims 1-12 were rejected. Claims 1, 10, 11, and 12 have been amended. Claims 8 and 9 have been canceled without prejudice.

The Examiner rejected claims 1-11 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,629,609 (Nguyen). Claims 1, 10, and 11 have been amended and the rejection is believed overcome thereby. More specifically, the limitations of claims 8 and 9 have been incorporated into these claims, and each is now clearly distinguishable from Nguyen.

Nguyen teaches a low voltage drop out circuit which employs a voltage regulating transistor between a supply voltage and an output terminal (Abstract). Referring to Fig. 1, when the voltage on the output falls below the regulated value, the corresponding voltage on the noninverting input of comparator 20 (as determined by the value of resistors RA and RB) falls below the band gap reference voltage supplied to the inverting terminal of comparator 20. This turns on transistor 13 which brings the output back up to the regulated value (column 4, lines 15-26).

When the supply voltage itself goes below a certain level (thus undermining the operation of the circuit described above, the voltage at the noninverting input of comparator 42 goes below the same band gap reference voltage supplied to the inverting input of comparator 42, thus turning on transistor 45 (connected in parallel with transistor 13) thereby connecting the supply voltage to the output terminal and keeping the voltage on the output terminal higher longer (column 4, lines 26-58).

By contrast, amended claim 1 now recites that "the switch control circuitry comprises a voltage regulator configured as a voltage controlled current source for providing a control signal to the switch circuitry." An example of this recited feature is shown in Fig. 1 of the present application and described in the present specification beginning at page 6, line 10. As described resistors R2 and R3, transistor Q2, and voltage regulator U1 are configured as a voltage

controlled current source such that in overvoltage and undervoltage conditions, the fixed voltage output of regulator U1 provides less or more current, respectively, to transistor Q2. This, in turn, results in regulation of current between VIN and VCC via transistor Q1 accordingly (i.e., due to the current drawn by regulator U1 causing a voltage drop across resistor R1).

Because Nguyen uses a simple voltage divider and comparator combination, it cannot be said to anticipate or even obviate the circuit recited in amended claim 1. The Examiner alternately refers to resistors 38 and 39, and PMOS transistor 13 as comprising a voltage regulator (page 3 of the Office Action). The Applicants respectfully disagree.

As is well known, a voltage regulator is a device which receives an input voltage which may vary and outputs a constant voltage. By contrast and by definition, the divider network comprising resistors 38 and 39 outputs a voltage which is proportional to its input voltage, i.e., changes with the input voltage. Neither may transistor 13 be characterized as a voltage regulator. Rather, as is well known, it may operate either as a switch or an amplifier depending upon its bias point. Therefore, because Nguyen does not show a voltage regulator configured as a current source providing a control signal to control switch circuitry as recited in amended claim 1, it cannot be said to anticipate the claimed invention.

In view of the foregoing discussion the rejection is believed overcome. The rejection of claims 2-7 is also believed overcome for at least the reasons discussed. In addition, in view of similar amendments made to claims 10 and 11, the rejection of these claims is believed overcome.

The Examiner rejected claim 12 under 35 U.S.C. 103(a) as being unpatentable over Nguyen in view of U.S. Patent No. 5,581,626 (Palmer). Claim 12 has been amended similarly to claims 1, 10, and 11. The rejection is therefore believed overcome for at least the reasons discussed above.

In view of the foregoing, Applicants believe all claims now pending in this application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested. If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at (510) 843-6200.

Respectfully submitted,
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Appendix I: Amended Claims With Markings Indicating Changes Made

1. (Amended) An overvoltage protection circuit for interposing between an input voltage and a supply voltage, the overvoltage protection circuit comprising:

switch circuitry connected to and passing current between an input voltage node and a supply voltage node, the input voltage node corresponding to the input voltage and the supply voltage node corresponding to the supply voltage; and

switch control circuitry for sensing the supply voltage and regulating current flow through the switch circuitry in response thereto, wherein the switch control circuitry comprises a voltage regulator configured as a voltage controlled current source for providing a control signal to the switch circuitry.

10. (Amended) An overvoltage protection circuit for interposing between an input voltage and a supply voltage, the overvoltage protection circuit comprising:

switch circuitry connected to and passing current between an input voltage node and a supply voltage node, the input voltage node corresponding to the input voltage and the supply voltage node corresponding to the supply voltage, the switch circuitry comprising at least one transistor connected between the input voltage node and the supply voltage node; and

switch control circuitry for sensing the supply voltage and regulating current flow through the switch circuitry in response thereto, the switch control circuitry comprising a voltage regulator configured as a voltage controlled current source for providing gate drive to the at least one transistor.

11. (Amended) An amplifier, comprising:

amplifier circuitry for amplifying an input signal; and

overvoltage protection circuitry for interposing between an input voltage and an amplifier supply voltage, the amplifier supply voltage providing power to the amplifier circuitry, the overvoltage protection circuitry comprising,

switch circuitry connected to and passing current between an input voltage node and an amplifier supply voltage node, the input voltage node corresponding to the input voltage and the amplifier supply voltage node corresponding to the amplifier supply voltage; and

switch control circuitry for sensing the amplifier supply voltage and regulating current flow through the switch circuitry in response thereto, wherein the switch control circuitry comprises a voltage regulator configured as a voltage controlled current source for providing a control signal to the switch circuitry.

12. (Amended) An automotive audio system, comprising:

audio amplifier circuitry for amplifying an audio input signal; and

overvoltage protection circuitry for interposing between a vehicle battery voltage and an amplifier supply voltage, the amplifier supply voltage providing power to the amplifier circuitry, the overvoltage protection circuitry comprising,

switch circuitry connected to and passing current between vehicle battery voltage node and an amplifier supply voltage node, the vehicle battery voltage node corresponding to the vehicle battery voltage and the amplifier supply voltage node corresponding to the amplifier supply voltage; and

switch control circuitry for sensing the amplifier supply voltage and regulating current flow through the switch circuitry in response thereto, wherein the switch control circuitry comprises a voltage regulator configured as a voltage controlled current source for providing a control signal to the switch circuitry.